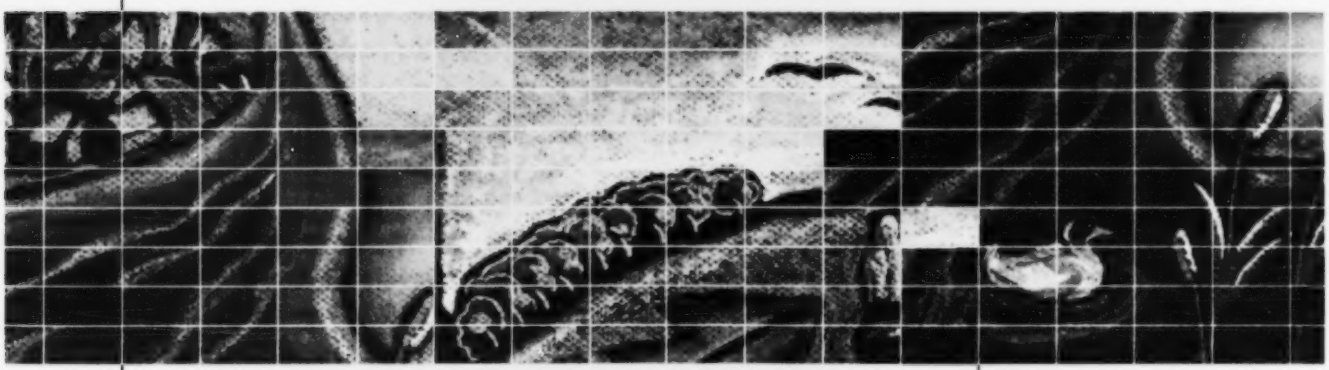
towards sustainable development



ONTARIO POWER GENERATION INC. 1999 PROGRESS REPORT

ONTARIOPOWER GENERATION

Company profile

Ontario Power Generation (OPG) is an Ontario-based electricity producer, owned by the Government of Ontario. It is one of the largest electricity generators in North America. In 1999, the company owned five nuclear generating stations, six fossil fuel stations and 69 hydroelectric stations, with a combined total installed generating capacity of about 30,900 megawatts.

OPG's principal business is the generation and sale of electricity in the Ontario wholesale market. In 1999, we generated electricity to meet the needs of 4 million homes and businesses in Ontario, or 85% of the total market. The company also sells electricity into the interconnected markets of Quebec, Manitoba, and the Northeast and Midwest United States.

We believe that the actions we take today to reduce the impact of electricity generation on the environment will help Canada's energy sector achieve sustainability in the future.

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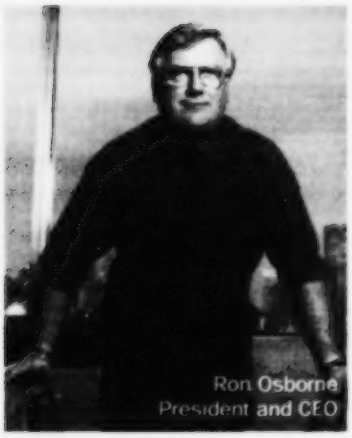
About This Report

This is the first *Towards Sustainable Energy Development* Progress Report produced by Ontario Power Generation* since it succeeded Ontario Hydro in April 1999. This report demonstrates our company's ongoing commitment to meet the electricity needs of society today through Sustainable Energy Development without jeopardizing the needs of future generations.

* For reasons of simplicity, aspects of operating performance relating to generation that predate the April 1, 1999 restructuring of Ontario Hydro are in some instances attributed to Ontario Power Generation.

President's message


Ron Osborne
President and CEO

We are proud to introduce our first annual progress report on sustainable development since the restructuring of Ontario Hydro on April 1,1999.

This report is as important to us as the financial report we released in June. That's because, for many customers and potential investors, our environmental performance is – and increasingly will be - a major factor in deciding to do business with us.

This report is part of our commitment to keep all our stakeholders – employees, customers, business partners, potential investors, and communities — informed about our progress in providing sustainable electricity solutions in response to the demands of a growing economy. How are we progressing in providing these solutions?

Importantly, we have a clear long-term goal: to be a sustainable energy company. Ultimately, this means minimizing our impact on the environment and ensuring that our contribution to society is consistently positive.

We have a solid platform of environmental achievements to build on. Our generating sources are among the cleanest available today. Between 1971 and 1999, our nuclear power stations alone displaced 1.2 billion tonnes of carbon dioxide emissions– making them key components in our strategy to reduce greenhouse gas (GHG) emissions under the Kyoto Protocol. At our fossil stations, emissions of acid gas are down 60 per cent from the early 80s – a direct result of the more than $1 billion we have invested in environmental improvements.

In addition to air emission reductions, we have implemented programs to lessen the impact we have on land, water and communities. We have introduced biodiversity initiatives to rehabilitate and preserve natural habitats. And we are also addressing conventional and nuclear waste management issues.

Despite our progress, we face a number of challenges as we strive to achieve our sustainable energy development goals going forward. First, global warming remains a huge and pressing concern. While OPG has voluntarily committed to stabilize net GHG emissions to 1990 levels by this year – a 26-million - tonne target – our company's efforts alone cannot solve the problem. We are therefore committed to working closely with other jurisdictions and businesses in developing an effective and workable international approach to managing GHG emissions.

A second challenge is our nuclear performance. While our nuclear performance has improved, we

are determined to measure up to worldwide industry standards in terms of overall efficiency. We must close this gap to fully capitalize on the environmental benefits inherent in nuclear energy – currently one of the few large-scale sources of electricity generation available that is virtually free of GHG and smog-producing emissions.

Our third challenge is to further reduce smog-producing emissions from our fossil generating stations. We expect that further investments in natural gas conversion, low-nitrogen oxide burners and combustion process modifications will, over the next two years, reduce OPG's NOx emission rates to levels 10% below U.S. Clean Air Act Phase II requirements. In addition, we are currently looking at the feasibility of installing advanced NOx emission control technology at Lambton Generating Station.

Finally, there is the ongoing challenge of strengthening our relationships with the local communities we serve. To this end, we have established programs at all our major generating stations designed to protect local environments and contribute to the well-being of those communities. We have a Corporate Citizenship Program and we invest in projects that support the communities in which we operate. We also encourage community residents to let us know how we can both improve our environmental performance and communicate more effectively with them. Our goal is to earn the trust and respect of the communities in which we operate.

As these challenges suggest, we are continuing the journey that will lead us one step at a time toward becoming a sustainable energy producer. While we have come a long way we still have some distance to travel. We are confident the path we have chosen is right for OPG — from an economic, environmental and stakeholder perspective. Recognizing that electricity is an essential commodity critical to the needs of a modern economy, we are committed to developing improved, more reliable and efficient ways of producing power and more innovative ways of offering it to consumers. We also recognize that in meeting this mandate, our actions must be protective of the environment and supportive of the communities in which we operate. As we prepare to enter a competitive market over the next few months, we believe this strategy makes good business sense.

In closing, I would like to acknowledge the contributions of OPG employees at our facilities all across the province. Two achievements in 1999 are especially notable. OPG became one of the first electricity companies on the continent to have all its major production facilities certified under ISO 14001, an international standard of excellence in environmental management. And second, OPG became the first recipient of Canada's National Energy Efficiency Award.

This report is an annual publication. I hope you will use it next year and in following years to track and measure our progress. We welcome your comments and suggestions. Achieving sustainable energy development is a continuous journey. We believe that over time, these reports will record how OPG not only made the journey, but took the lead.

The sustainable development policy

Ontario Power Generation is committed to becoming a sustainable energy development company. We will work towards this goal by applying the principles of sustainable development* to the generation and sale of electricity and related energy products and services. Enhanced environmental performance and increased competitiveness will be achieved through continual improvement in:

- Ecosystem protection
- Energy and resource use efficiency
- Pollution prevention, and
- Community relations.

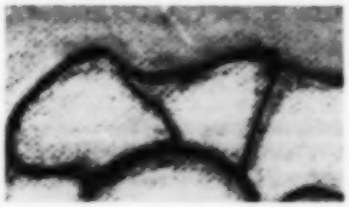
Requirements — *OPG will:*

- Meet all legislative requirements and voluntary environmental commitments, with the objective of moving beyond compliance.
- Maintain environmental management systems consistent with the International Organization for Standardization (ISO) 14001 Environmental Management Specification.
- Integrate environmental and social factors into our planning, decision-making and business practices.
- Apply the precautionary principle to assess the human health risks and environmental damage resulting from our operations and any potential risks and impacts from new technologies and processes, even where scientific consensus has not yet established the level of risk or damage. Implement cost-effective mitigation measures for impacts that cannot be avoided.
- Develop the use of renewable energy and energy-efficient technologies.
- Educate, encourage and empower employees to conduct their activities in an environmentally-responsible and sustainable manner.
- Measure and communicate our progress towards achieving sustainable development.

OPG management is accountable for the implementation of this policy. The Executive Vice President and Corporate Secretary is accountable for monitoring and reporting progress in implementing this policy on behalf of the President and CEO.

* Sustainable development is defined as "development which meets the needs of present generations without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development, 1987)

Practising sustainable energy development



Ontario Power Generation is committed to becoming a sustainable electricity producer. Our reasons for moving steadily in this direction are quite simple: It is both a sound business decision and the right thing to do.

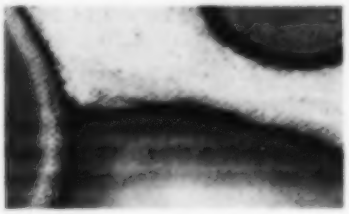
OPG will be a sustainable energy company when its impact on the environment is minimal and its influence on society is consistently positive. To achieve sustainability we will improve performance in our operations, create value for our shareholder and customers, and work with stakeholders and the communities where we operate.

To achieve operational sustainability, OPG will continue its strategy of consistently reducing the impact of its operations on the environment. All of the company's major generating facilities will contribute to this endeavour by initiating projects to protect and enhance the ecosystems and biodiversity unique to their region. OPG will produce more electricity from green energy sources and continue to support research and development toward new technologies with the potential to accelerate the quest for sustainable energy production. The ISO 14001 environmental management system will keep OPG on track to achieve its goals, to move forward, and to ensure that environmental and social considerations are included with economic factors in the company's planning and decision-making processes.

For many years, OPG has worked to improve its environmental performance. The cumulative benefits of the company's actions show up in greater operational efficiencies; optimized use of resources; reduced waste production; lower emissions to air, land and water; and healthier ecosystems near OPG facilities.

Sustainability for OPG also means becoming the electricity supplier of choice. In looking beyond its own operations, OPG will provide electricity and energy services that meet customer needs and expectations, and provide real value to its shareholder. As interest in renewable energy increases in a competitive market, OPG will provide its customers more choices in making their electricity purchasing decisions, including a wider array of green energy sources.

To be socially responsible we will continue to engage communities, governments and other stakeholders in constructive dialogue to develop workable solutions to environmental problems. We will participate in community-based initiatives and support local economies. We will anchor our reputation on verifiable environmental performance, and be forthcoming in communicating risks to the public.The journey toward sustainability is an evolving process. To mark the distance we travel, we will continue to report our progress annually.



Corporate governance

Accountability and Reporting

The Board of Directors of Ontario Power Generation approved the Sustainable Energy Development Policy that governs the company's overall environmental performance. On a regular basis, the Board reviews OPG's progress in meeting its environmental goals and objectives. Each quarter, the Environment, Health and Safety (EH&S) Committee of the Board of Directors meets to assess the company's performance in meeting specific environmental targets.

The President and Chief Executive Officer of Ontario Power Generation approves company policies that support the goals and objectives of the Sustainable Energy Development Policy. The President and CEO is also accountable for the company's overall performance in meeting its environmental and sustainable development performance targets.

OPG's Senior Managers are accountable for environment and sustainable development performance within their areas of responsibility, including compliance with regulations and corporate policies, the development of effective strategies and programs to minimize environmental risks and for ensuring positive relationships with the communities in which OPG operates.

The Corporate Audit Group, which reports to the President, conducts environmental audits throughout the year. Audit results and management progress in implementing corrective actions, are reported to the President and to the Audit and EH&S committees of the Board of Directors.

Environmental Policies

OPG's environmental policies focus the company's efforts to improve environmental performance in a consistent and measurable manner. At the heart of OPG's environmental policies and programs is the Sustainable Energy Development Policy. This document sets the course that all of the company's supporting environmental policies must follow. Specifically, OPG has introduced environmental policies to drive progress in the following areas:

- Spills Management (page 9)
- PCB Management (page 11)
- Ozone-depleting Substances (page 11)

- Land Assessment and Remediation (page 24)
- Biodiversity (page 27)

Corporate Environmental Performance Targets

OPG's corporate-wide environmental performance targets for the year 2000 are focused on improving performance in the following key areas: spills, regulatory compliance, energy efficiency, air emissions, radioactive emissions and waste management.

Category	Target for 2000
Spills	Category A=0, Category B= 3 or less, Category C= 70 or less*
Regulatory compliance	Director's orders, field orders, charges, convictions = 0
	Minor infractions = 285 or less
Energy efficiency	200 GWh saved
Air emissions	NOx Net Emissions = 38 Gg or less
	NOx Emission Rate =1.25 Gg/TWh or less
	SO_2 Emissions =175 Gg or less
	Greenhouse Gas Net Emissions = 26 Tg or less
Radiation emissions	Radiation Dose to the Public = below regulated limits
Low- & intermediate-level radioactive waste, all sources	5,360 m^3 or less
Fossil byproducts (ash & gypsum) diverted from landfill	734 m^3 or better

- For an explanation of Categories A, B and C spills, see Spills Management, page 9.

ISO 14001 Certification

The strength and success of an organization's environmental policies are largely determined by how effectively they are managed and implemented. In designing its corporate environmental management system, OPG has adopted the standards of the internationally recognized ISO 14001 Environmental Management System. The ISO 14001 system provides OPG with a consistent, rigorous process and third-party assurance that the company's policies are driving continual improvement in its environmental performance. As well, ISO 14001 assists OPG in evaluating the quality of the processes being used to manage the impacts of its operations on the environment.

In 1999, OPG's corporate, nuclear, fossil and major hydroelectric stations achieved ISO 14001 certification. We are one of the first electricity companies in North America to earn this distinction. As a condition of certification, OPG must dedicate itself to comply with environmental regulations, work to prevent pollution of the environment, and demonstrate ongoing improvement in the following key areas of environmental management—environmental policies and planning, implementation and operations, monitoring and corrective actions, and management reviews.

Benchmarking OPG's Environmental Practices

In 1999, OPG retained international consultant Arthur D. Little to conduct a benchmarking study to compare OPG's corporate environmental management practices and processes to those of best-in-class organizations. Arthur D. Little's report affords OPG a third-party evaluation of both strengths and weaknesses in its corporate environmental practices and processes, and an essential baseline for measuring its progress. A synopsis of Arthur D. Little's findings is provided below.

Arthur D. Little has reviewed Ontario Power Generation's corporate-level environmental management practices and compared them with the practices of leading companies in various industry sectors in North America and Europe. Our focus was on design and implementation at the corporate level and not on implementation in the business units and operating locations.

In our opinion, Ontario Power Generation's corporate-level environmental management practices are generally consistent with the leaders – and some are best in class. Key strengths include its environmental planning guidelines, corporate governance and internal management reporting, external communications and interactions, and the corporate-level environmental management system. Key areas for improvement include: (1) enhancing the acquisition and divestiture process to more formally and comprehensively address environmental management as the frequency of these types of transactions increases, (2) clarifying the company's environmental vision as it transforms itself from a publicly-owned monopoly to a more commercial, competitive entity, and (3) improving its programs promoting environmental excellence in its suppliers and further leveraging them for OPG's own environmental improvement.

Based on these study findings, OPG has taken steps to enhance its due diligence practices related to acquisitions and divestments, and to incorporate environmental criteria in its Supply Chain Excellence Program and contractor selection process. We have also in this report clarified our environmental vision and further defined our sustainable development strategy. (see page 4).

Industry Associations

OPG is an active participant in environmental associations and groups that seek to find

lasting solutions to environmental issues. A short list of OPG's affiliations include the following:

- World Business Council on Sustainable Development: This coalition of about 130 companies from 30 countries promotes cooperation between business, government and industry associations in the search for sustainable development solutions. The council also works to encourage high standards of environmental management among businesses around the world.

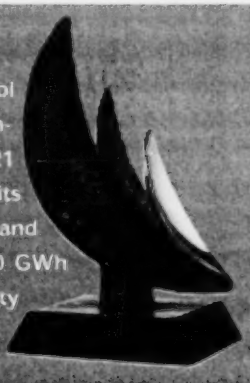
- Canadian Electricity Association: OPG is a member of this association, which represents Canada's 26 electricity producers. OPG participates in the association's Environmental Commitment and Responsibility Program, a forum for addressing the electricity industry's commitment to sustainable development and improved environmental performance.

- EXCEL (Excellence in Corporate Environmental Leadership): EXCEL assists organizations in developing strategies to accelerate integration of environmental priorities into core corporate objectives, such as building shareholder value, productivity and customer satisfaction. EXCEL members include companies such as Alcan, Dofasco, TransAlta, Nexfor and Westcoast Energy.

- E7: This international collaboration of eight of the world's leading electricity companies is committed to promoting sustainable energy development.

- Clean Energy Group: A coalition of major Northeastern U.S. electrical utilities devoted to the advancement of clean energy and responsible environmental stewardship.

Energy Efficiency Award



A program to reduce OPG's internal energy use has become an award-winning symbol of the company's capacity to be an energy-efficient, low-cost, environmentally-conscious supplier of electricity. In 1999 Natural Resources Canada selected OPG over 21 other industrial contenders to win the first National Energy Efficiency Award for its Energy Savings Program. Based on the four E's—Energy, Environment, Economy and Employees—the program reduced OPG's internal energy consumption by 1,750 GWh between 1994 and 1998. A reduction of this size is equal to the amount of electricity consumed by about 140,000 homes in one year and represents a $70-million reduction in operating costs for OPG. The Energy Savings Program is expected to earn emission reduction credits totaling 1.9 million tonnes of carbon dioxide, sulphur dioxide and nitrogen oxide, valued at about $10 million. The unqualified success of this initiative is a tribute to all OPG employees.

Measuring corporate performance

Spills Management

Ontario Power Generation reduced the number and severity of spills from its facilities in 1999. In ranking severity of spills, our company adheres to the classifications and definitions provided in Ministry of the Environment (MOE) guidelines: major spills are Category A, moderate spills are Category B, and minor spills are Category C. Category C spills are small, and they are usually readily contained and cleaned up without significant impact to the environment. For the second year in a row, OPG had no Category A spills in 1999. Five Category B spills and 71 Category C spills were recorded in 1999 (see Figure 1). Four of OPG's Category B spills occurred at the Bruce nuclear facility and involved the accidental release of 16.4 million litres of boiler feed water contaminated with hydrazine, a corrosion inhibitor. The Bruce facility has escalated inspections and repairs to all passing valves to prevent a recurrence of these incidents. The remaining Category B spill occurred at the Darlington nuclear facility and involved the accidental release of 1,043 kilograms of the fire-extinguishing agent Halon. OPG is phasing out its use of ozone-depleting substances, including Halon (see page 11).

OPG's goal is to eliminate all spills, and we expect to achieve this goal by constantly improving our processes and equipment. Each year we set performance improvement targets. In 2000, our targets are as follows: Category A spills=0, Category B spills=3 or fewer, Category C spills=fewer than 70.

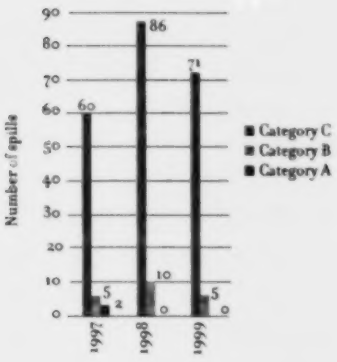


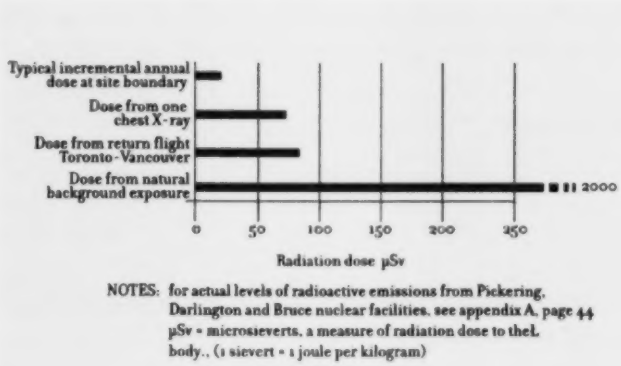
Figure 1

Three-year **spill performance** trend. There were no category A spills in 1998 and 1999.

Regulatory Compliance

OPG's goal is to comply with all regulatory requirements. In order to achieve this goal, we have implemented environmental management systems and processes designed to ensure continuous performance improvement. Our compliance record is not perfect, but we are determined to improve. In 1999, the upgrading of nuclear effluent treatment facilities to meet provincial Municipal Industrial Strategy for Abatement (MISA) toxicity standards was a major challenge for the company. OPG was successful in achieving compliance with MISA regulations by December 1999.

In 1999, OPG recorded 396 regulatory infractions, most of which did not result in any perceptible environmental impact. Of these events, 109 related to provincial effluent regulations under MISA; 121 related to site-specific Certificates of Approval; 123 were miscellaneous infractions relating primarily to air emissions; and 43 were MOE reportable spills, which are included in the 76 spills noted in Figure 1. In all cases, steps were taken to correct deficiencies. The MOE issued one Field Order to OPG's Desjoachims hydroelectric station, located near Deep River, for disposing of wastes without a Certificate of Approval. Remediation activities were undertaken immediately, and the conditions of the order have since been completed to the satisfaction of the ministry.



NOTES: for actual levels of radioactive emissions from Pickering, Darlington and Bruce nuclear facilities, see appendix A, page 44
μSv = microsieverts, a measure of radiation dose to the L body., (1 sievert = 1 joule per kilogram)

Figure 2

A hypothetical individual living on the boundary line of an OPG nuclear facility for one year—and consuming only local water, milk, fish and produce—would receive incremental **levels of radiation** that are lower than the dose received from one chest X-ray, a return flight between Toronto and Vancouver (radiation exposure from the sun), or natural background exposure.

While our ultimate goal is to incur no regulatory infractions whatsoever, our performance target in 2000 is to incur no major infractions and to reduce all regulatory non-compliance events by 28% compared with 1999.

OPG notifies the Ministry of the Environment when monitors at its fossil stations detect increases in stack particulate emissions that can lead to opacity events. In 1999, OPG provided the ministry with 244 notifications. In each case, OPG took immediate steps to mitigate emissions. In 1999, OPG, in consultation with the MOE, developed a new opacity reporting procedure for implementation in 2000. Quality assurance measures in the procedure will result in improved opacity performance in the future.

Regular monitoring of OPG's nuclear facilities confirms that we have consistently achieved our annual targets for radioactive emissions, which are well below the regulatory limit set by the Atomic Energy Control Board. We are upgrading our monitoring

programs and technology in year 2000 to obtain even more accurate measurements in real time. Radiation dose to the public information arising from these emissions is provided in Figure 2.

PCB Management (Polychlorinated Biphenyls)

While there is no regulatory requirement to eliminate PCBs, OPG's policy on PCB management targets the phase-out and destruction of 81% (based on 1994 inventories) of in-storage PCB waste and high-level in-service PCBs by 2005, and the remainder by 2015. OPG has reduced its inventory of in-service PCBs and PCB wastes by about 55% since 1994, and is on track to meet its 2005 targets. In 1999, OPG shipped 210 tonnes of PCB waste for destruction. At December 31, 1999, our PCB inventory was 1,851 tonnes, down from 4,123 tonnes in 1994. As a result, many of the company's facilities no longer have high-level in-service PCBs or PCB waste stored on site.

Ozone-Depleting Substances

Ozone-depleting substances include chemicals that can destroy the earth's protective layer of stratospheric ozone if they are emitted. They include refrigeration gases (e.g., chlorofluorocarbons, or CFCs) and fire-extinguishing agents (e.g., Halon) used in computer rooms and electrical applications. OPG plans to eliminate all ozone-depleting substances from its facilities by 2015. In 1999, OPG converted air conditioners in its heavy-duty vehicles to non-CFC refrigerants. The company has also taken steps to achieve near-zero emissions of CFCs from all of its in-service chillers. The elimination of Halon fire extinguishing systems across OPG will be completed with the phase-out of the Darlington system in 2001 and a small 38-kilogram unit at the International Control Dam in Niagara Falls, in 2002.

National Pollution Release Inventory (NPRI)

Under the Canadian Environmental Protection Act (CEPA), OPG is required to report emissions to air, water and landfill for a number of substances. Environment Canada collects and publishes emissions results for these substances from industries across Canada.

The table on page 12 shows OPG's emission data as submitted to the NPRI for the years 1997 and 1998. The higher levels of emissions in 1998 are a direct result of OPG's increased use of fossil fuels to meet consumer requirements for electricity while our Nuclear Improvement Program is in progress (see Nuclear Improvement Program page 19).

OPG'S NPRI Emissions: Air, Water & Landfill	1997(tonnes)	1998(tonnes)
Ammonia	44.7	55.3
Arsenic	14.6	29.6
Chromium	66.2	92.9
Cobalt	17.0	26.1
Copper	92.7	84.7
Hydrazine	2.9	1.9
Hydrochloric Acid	4430.5	6709.6
Hydrogen Fluoride	224.7	295.0
Lead	15.2	26.0
Manganese	138.6	157.9
Nickel	46.0	64.0
Selenium	n/a	9.4
Sulphuric Acid	707.1	863.9
Zinc	67.5	81.9

Accelerated Reduction/Elimination of Toxics (ARET)

The ARET voluntary reporting program involves 117 toxic substances, 30 of which persist in the environment and may accumulate in living organisms. ARET's goal is to virtually eliminate these 30 substances and to reduce emissions of all remaining toxic substances to levels beneath which no harm will come to the environment. OPG emits nine

OPG'S Toxic Emissions Reported Under the ARET Program	Base Year 1993 (tonnes)	1998 (tonnes)		Target 2000 (tonnes)	
	Water Only	Air	Water	Air	Water
Arsenic (inorganic)	0.013	0.19	0.072	0.19	0.072
Copper (inorganic salts)	56.48	3.95	14.74	3.95	13.74
Hydrazine	3.08	0.09	1.87	0.1	2.0
Zinc (inorganic, inhalable, soluble)	22.37	8.47	5.77	8.47	5.40
PCBs	0	0	0	0	0
Lead*	0.051	0.29	0.074	0.29	0.073
Chromium (Cr^{6+})*	n/a	0.07	0	0.07	0
Mercury*	n/a	0.59	0	0.59	0
Nickel*	n/a	2.58	0.39	2.58	0.39

* These substances were added to the list in 1998
Monitoring and reporting of air emissions was introduced in 1998. Data for 1999 was not available at time of print
n/a = not available

of the 117 contaminants in amounts that are reportable under ARET. Of these, eight are considered to be persistent and/or bioaccumulative. In 1998, the company reduced total emissions to water of copper, zinc, arsenic and lead—resulting from the erosion of brass condensers at its nuclear facilities—by 74% compared with 1993 levels, exceeding its total emission reduction target of 50% in this time frame. (see ARET table, page 12)

Prior to 1998, OPG reported emission releases to water only. In 1998, we expanded our monitoring and reporting program to include air emissions, and added four contaminants to our ARET list.

Improving air quality

VIRTUALLY ALL OF OPG'S EMISSIONS of nitrogen oxide (NOx), sulphur dioxide (SO_2) and carbon dioxide (CO_2) originate from the combustion of fossil fuels—coal, oil or natural gas—used to produce electricity. OPG's emissions per unit of electricity production are among the lowest in Ontario's regional airshed. Our emission rates are lower because of the use of emission control technologies, low sulphur fuel and the company's diverse generation mix that includes nuclear, hydroelectric, fossil and a modest amount of green energy.

About 50% of OPG's electricity output comes from nuclear power, which results in negligible emissions of nitrogen oxide and sulphur dioxide (acid gases) and carbon dioxide (greenhouse gas). Another 25% of OPG's electricity is produced from hydroelectric sources, which produce virtually no acid gas emissions. The remaining 25% of OPG's electricity is generated at fossil fuel stations, which are typically the last OPG generating facilities to be brought on-line to meet electrical demand, and the first to be turned off. In contrast, electricity producers in neighbouring U.S. states that share Ontario's airshed rely primarily on fossil fuels to meet the day-to-day energy needs of consumers, as reflected in Figure 3.

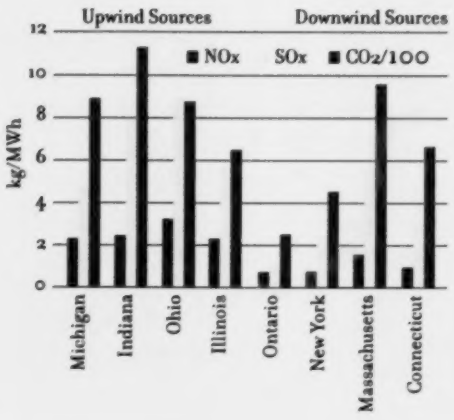


Figure 3

Emission rates for NOx, SO_2 and CO_2: Upwind and Downwind U.S. States vs. Ontario

Source: Clean Air Action Corporation, 1999

Since the mid-1980s, OPG and its predecessor company have invested more than $1 billion on environmental improvements to reduce air emissions from its fossil fuel plants. As a result, OPG fossil-fuelled stations today produce 60% lower acid gas emissions to generate the same amount of electricity as they did in the early 1980s. Acid gas emission rates have dropped from 13.2 Gg/TWh in 1994 to 5.4 Gg/TWh in 1999. OPG will continue to build on this foundation by investing in additional emission-reduction technologies and other improvements.

In keeping with our commitment to provide our stakeholders with meaningful information in a timely fashion, later this year OPG will publish site emission performance data for each fossil facility on the company's website. This information will be updated quarterly on a site-by-site basis, rather than annually and in aggregate as required by the regulations.

Nitrogen Oxides (NOx)

Ground-level ozone is the primary component of smog. It is produced when airborne emissions of NOx and volatile organic compounds (VOCs) combine in a chemical reaction in the presence of sunlight. The concentrations of smog that accumulate in Southern Ontario are a particular concern because of public health and environmental

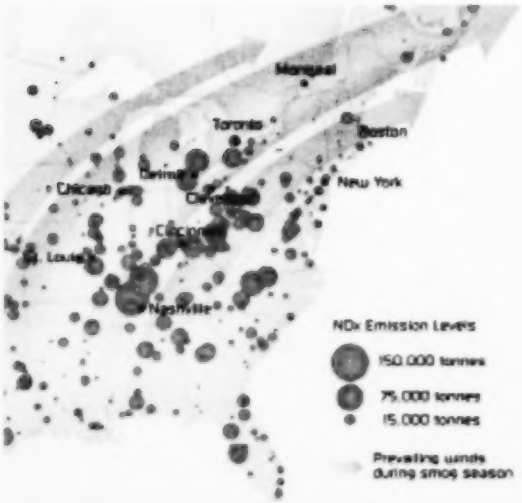


Figure 4

Southern Ontario Airshed Map: **smog sources and wind patterns**. The map illustrates prevailing wind patterns during high smog conditions in Southern Ontario.
Source: Canadian Geographic et al, 2000

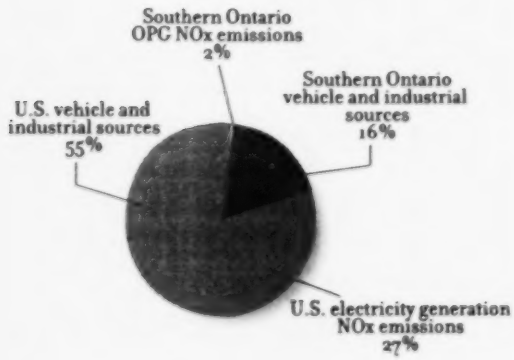

Southern Ontario OPG NOx emissions 2%
Southern Ontario vehicle and industrial sources 16%
U.S. vehicle and industrial sources 55%
U.S. electricity generation NOx emissions 27%

Figure 5

Sources of smog-producing pollutants affecting Southern Ontario.
Source: Stratus Consulting Inc., 2000

Sources of Smog-producing Emissions

A modelling study co-sponsored by Environment Canada, OPG and Hydro Quebec, based on a 1995 smog episode, concluded that as much as 82% of the ground-level ozone in Southern Ontario's smog belt originates from emissions produced in the United States; 16% is derived from motor vehicles and industrial sources within Ontario; and about 2% is caused by NOx emissions from OPG fossil fuel electricity generating stations in Ontario.

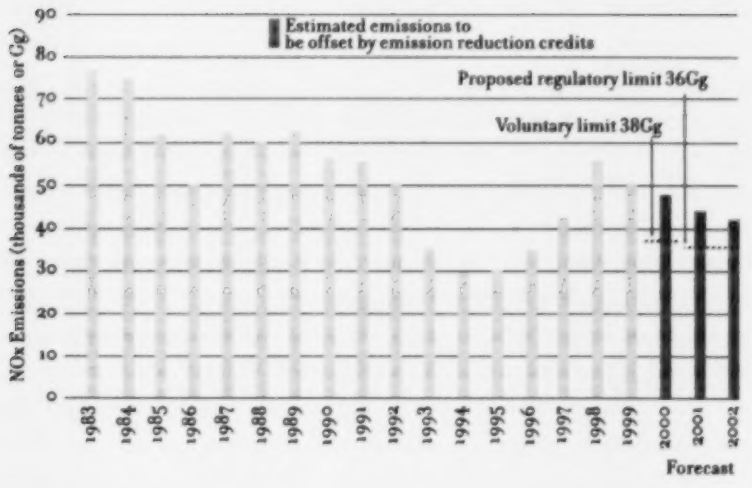


Figure 6

NOx emissions trend for OPG fossil-fuelled generating stations and estimated emissions to be offset by emission reduction credits in 2000 and beyond assuming fossil-production level of 40 TWh assuming fossil production levels of 40 TWh.

impacts. Industrial, commercial and transportation emitters both inside and outside of the province contribute to the smog problem in Southern Ontario.

Environmental improvements such as low-NOx burners, continuous emission monitors, smart computer control systems, and the conversion of oil-burning units to also burn natural gas have helped to reduce OPG's NOx emission rate from fossil generation by 40% since 1994. We expect that further investments over the next two years will reduce NOx emissions by an additional 10% to 15% by 2002.

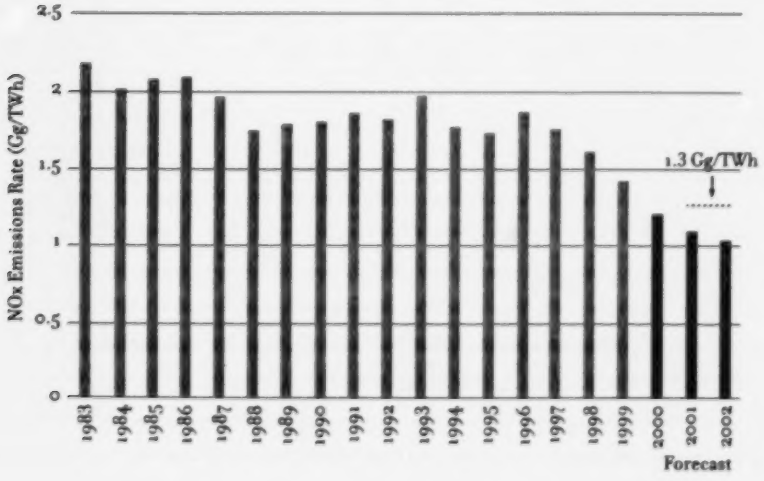


Figure 7

NOx emissions rates for OPG fossil-fuelled generating stations. Proposed standard for 2001-2002 is also indicated.

In 1997 and 1998, NOx emissions from OPG fossil generating stations increased in part because of the greater demand imposed by the temporary layup of eight nuclear units as part of OPG's Nuclear Improvement Plan (see page 19). As illustrated in Figure 6, OPG's NOx emissions began to decline in 1999 as a result of emission control technologies and fuel quality improvements ,despite record-level fossil production.

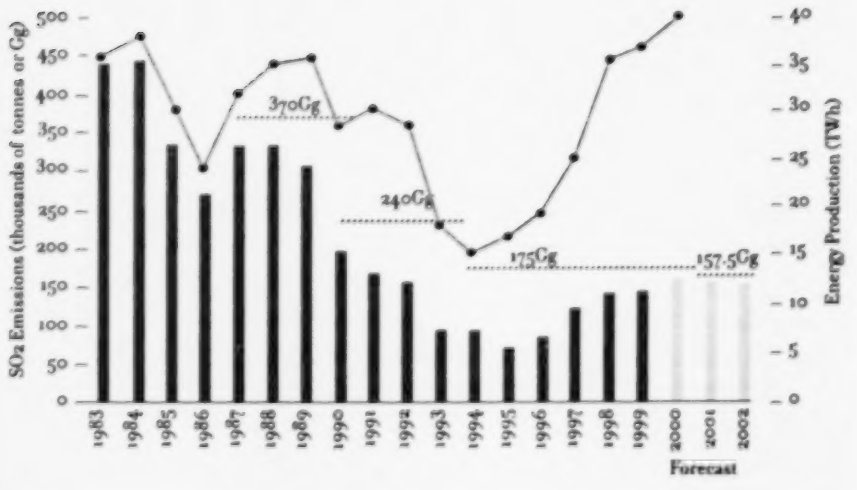
In 2000, OPG will achieve its voluntary net NOx* emission limit of 38,000 tonnes, and in 2001 comply with the proposed regulated net NOx limit of 36,000 tonnes, by purchasing emission reduction credits (see page 20) from upwind sources whose emissions have an impact on Ontario's airshed. We will also meet the proposed NOx emission rate** of 1.3 Gg/TWh. See Figure 7.

Sulphur Dioxide (SO_2)

The combustion of fossil fuels containing sulphur produces airborne emissions of SO_2, which contributes to acid rain. OPG's six fossil stations in Ontario are fuelled by either coal, oil or natural gas. The combustion of coal and oil usually produces SO_2 emissions. Natural gas, however, burns virtually free of SO_2 emissions. In recent years, OPG converted two oil-burning units at its Lennox generating station to burn natural gas, and the company plans to convert two more in 2000. OPG has also increased its use of low-sulphur coal and installed a pair of SO_2 scrubbers at Lambton generating station in 1994.

Figure 8

SO_2 emissions trend for OPG fossil-fuelled generating stations. Historical regulatory emission limits are indicated along with proposed limits for 2001-2002.



* Net emissions = total emissions minus applicable emission reduction credits
** Emission rate = total emissions divided by net electricity production

As a result of these significant investments, the company reduced total SO_2 emissions by 353,000 tonnes, between 1983 and 1996, as illustrated in Figure 8. In 2000 and 2001, OPG will meet proposed SO_2 emission limits of 175,000 tonnes and 157,500 tonnes respectively.

Carbon Dioxide (CO_2)

At the 1997 Kyoto conference, Canada committed to reduce its emissions of carbon dioxide and other greenhouse gases by 6%, between 2008 and 2012, compared to 1990 levels. In support of efforts to combat climate change, OPG has re-examined the Strategy to Manage Greenhouse Gas Emissions developed by the former Ontario Hydro.

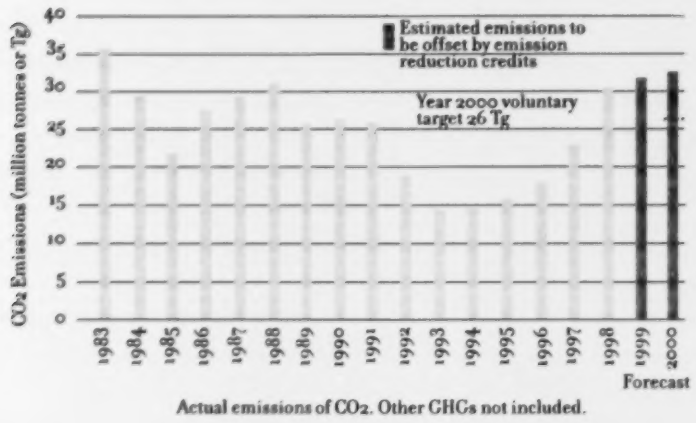


Figure 9

CO_2 emissions for OPG fossil-fuelled generating stations and estimated emissions to be offset by emission reduction credits in 2000 and beyond.

Specifically, OPG has renewed its voluntary commitment to stabilize the company's net CO_2 emissions at their 1990 levels—that is, 26 million tonnes—by December 2000. The company will meet this target by implementing internal energy efficiency upgrades, carbon sequestration (e.g., tree planting) and by participating in emission reduction credit trading.

To measure its progress, OPG will develop, before the end of year 2000, a verifiable site-by-site inventory and reporting structure for all greenhouse gases addressed by the Kyoto Protocol. Carbon dioxide represents about 95% of all greenhouse gases emitted by OPG's facilities. The generation of electricity also results in the release of small quantities of other greenhouse gases such as methane, sulphur hexafluoride, nitrous oxide, hydrofluorocarbons and perfluorocarbons.

Nuclear power is key to meeting Canada's objectives to reduce emissions of greenhouse gases. Between 1971 and 1999, OPG's 20 nuclear units displaced 1.2 billion tonnes of carbon dioxide. This is roughly equivalent to the CO_2 emissions produced by Canada's total transportation sector (road, air and marine) over 7 years. During this period, nuclear generation also displaced significant quantities of acid gas emissions in the province, including 11 million tonnes of sulphur dioxide and 2.5 million tonnes of nitrogen oxide. Returning OPG's Pickering A nuclear units to service will displace about 13 million tonnes of carbon dioxide each year and help to reduce the company's overall acid gas emission rates. Pickering A's 2000 megawatts of generation capacity is capable of supplying 15 terawatt-hours of electricity a year, which is enough energy to supply all the homes in the city of Toronto. The return to service of Pickering A is subject to regulatory approvals, including the environmental assessment that is now under way.

Each year, OPG submits a Greenhouse Gas Action Plan to Canada's Climate Change Voluntary Challenge Registry. In 1999, our Action Plan received a "silver" rating and ranked second in Canada's electricity sector. Our 1999 Greenhouse Gas action plan is available upon request.

Emission Reduction Initiatives

Low-NOx Burners **New-generation, low-nitrogen-oxides burners at Nanticoke and Lambton fossil fuel stations have reduced per unit NOx emissions by 33% since 1998. A $4-million project to install low-NOx burners on two units at Lakeview Generating Station is expected to reduce unit-based NOx emissions by 50%, or about 1000 tonnes a year, beginning this summer.**

Emission Control Technology **Sulphur dioxide emission scrubbers installed in 1994 at Lambton fossil fuel station eliminated more than 90% of SO_2 emissions from two of the plant's generating units in 1999.**

Artificial Intelligence **Artificial-intelligence control systems, installed over the past two years at Lambton and Lakeview stations, have made the coal combustion process more efficient and could lower NOx emissions from these facilities by as much as 10%.**

Conversion to Natural Gas **Natural gas is a cleaner-burning fossil fuel than coal or oil. In recent years, upgrades at Lennox Generating Station have made it possible to burn both natural gas and oil. As a result, in 1999 Lennox station produced more electricity than in any previous year, with almost 90% fewer acid gas emissions than in the previous record year. The remaining two units at Lennox are being converted to burn natural gas in year 2000. In addition, the viability of building a natural gas-fired generation facility at the Lakeview Generating Station is under review.**

Selective Catalytic Reduction Units **Selective Catalytic Reduction is one of the most effective and innovative technologies currently available to reduce NOx emissions at fossil-fuelled electricity facilities. It can reduce per unit NOx emissions by as much as 80%. OPG is undertaking an engineering and environmental impact study to evaluate the installation of Selective Catalytic Reduction units at one of its major fossil-fuelled generating stations.**

Other emission reduction initiatives documented elsewhere in this report include:

- **Internal Energy Efficiency (page 8)**
- **Tree Planting and Preservation (page 29)**
- **Green Energy (page 30)**

Emission Reduction Credit Trading

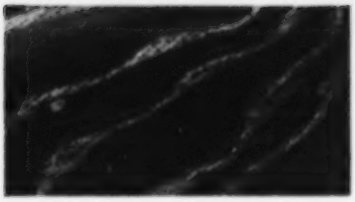
"There is growing evidence that providing businesses and consumers with market-based mechanisms for addressing environmental problems can achieve equal or better compliance while reducing costs and spurring technological innovation." (Eileen Claussen, Executive Director, Pew Center on Global Climate Change, 1998)

The governments of Canada, Ontario, the United States, Australia and many European countries support Emission Reduction Credit (ERC) trading, (one example of a "market-based mechanism"), as a cost-effective, faster way of achieving air quality improvements — especially within large airsheds where there are multiple sources of pollution.

OPG was one of the first electrical utilities in the world to engage in international ERC trading, which is now sanctioned in proposed new Ontario regulations. OPG is a member of the following organizations specializing in ERC trading: The Pilot Emissions Reduction Trading project established in Ontario in 1996; the Canadian Greenhouse Gas Emission Reduction Trading pilot project; the Greenhouse Emissions Management Consortium; and the U.S. Northeast States for Coordinated Air Use Management-Greenhouse Gas Emissions Trading Demonstration Project.

In 1999, OPG agreed to purchase 2.5 million tonnes of CO_2 credits from Connecticut-based Zahren Alternative Power Corporation. Zahren generated the credits by collecting and burning methane — a greenhouse gas—to produce electricity before the gas could be released from landfill into the atmosphere. In another trade, OPG acquired 350 tonnes of NOx credits from Shell Canada Inc., who is using gasoline additives to reduce NOx in tailpipe emissions.

If you would like more information about emission reduction trading, or have questions or comments about OPG air emissions, please e-mail us at webmaster@ontariopowergeneration.com



Managing water resources

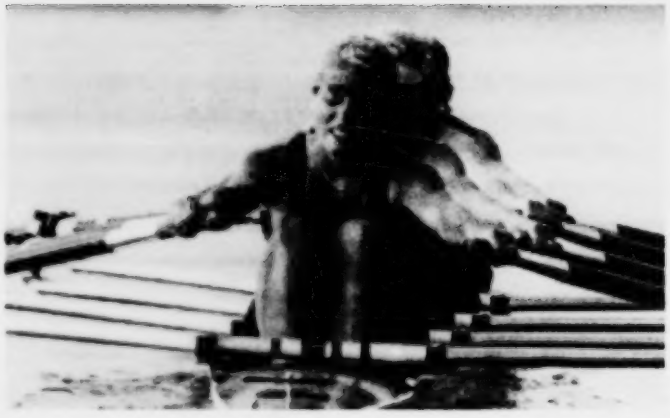
WATER IS AN ESSENTIAL RESOURCE for Ontario Power Generation in producing electricity from hydroelectric, fossil and nuclear generating stations. The most important water management issues for OPG are the quality of effluents discharged and the management of water levels and flows. For example, the water that OPG facilities use for cooling purposes must conform to strict temperature limitations before it can be discharged to the environment.

Water discharged as effluent by electricity generating stations can be exposed to contamination from on-site materials such as coal or fly ash, process spills or additives such as hydrazine, used to prevent corrosion. Also, chemicals required for the safe operation of a facility, such as chlorine used to control zebra mussels, may also pose a risk. OPG has initiated measures to reduce chlorine discharges and toxicity by applying semi-continuous chlorination, delaying start-up of chlorination systems and, in some instances, operating dechlorination units. We are committed to finding an appropriate balance between protecting assets from zebra mussel impacts and protecting the environment. Research has been underway for the past 10 years to find suitable alternatives to chlorine for zebra mussel control. OPG has established four large-scale demonstration projects to explore such alternatives, including ultraviolet lights and intermittent ozone at Bruce nuclear station, filter technologies at Nanticoke station, and continuous ozonation technology at Lennox.

OPG takes special precautions to minimize fluctuations in water levels on the rivers where its hydroelectric facilities are located. Changes in both water levels and flow rates can interfere with the natural processes of erosion and accretion of shorelines and riverbanks, thereby impacting fish habitats. The ecosystems surrounding many OPG hydroelectric sites have stabilized because the facilities have been in operation for such a long time—63 years on average. Although rare, environmental incidents can still occur. In 1999, 76 lake sturgeon died at the Adam Creek control dam when they became stranded in a pool of water. To minimize such occurrences, we operate a program to relocate sturgeon to appropriate habitats away from our facilities.

The waterways that provide OPG with essential energy are equally important to commercial and recreational fishermen, boaters, cottage owners, First Nations and others. We frequently meet with community stakeholders to discuss water management issues, and we do our best to address their concerns. Whenever possible, we adapt our facilities to perform functions that go beyond the generation of electricity. Last summer, the DeCew Falls Generating Station in St. Catharines, Ontario, reduced power production to

enable major rowing competitions to take place on Twelve Mile Creek, including the 1999 World Rowing Championships. On the Madawaska River, OPG has provided special releases to increase water flows for kayaking and white water rafting below Bark Lake.



OPG adjusts water levels to accommodate stakeholder activities, including Rowing Championships on Twelve Mile Creek.

Regulatory Compliance

OPG's objective is to operate all its facilities in full compliance with water quality regulations. In 1999, OPG recorded 109 events that were not in compliance with provincial Municipal-Industrial Strategy for Abatement (MISA) regulations. Each one of these events was internally investigated and followed up with corrective action. Many of these infractions were administrative in nature, involving sampling and reporting errors. In the most significant incidents, OPG exceeded effluent toxicity limits. In addition, our Nanticoke station received a Notice of Violation from the Ministry of the Environment for runoff water that contained high concentrations of suspended solids from a coal pile on the site. The conditions that lead to these types of events are often associated with severe rainstorms. OPG monitors and controls runoff from its sites to prevent such occurrences.

Environmental Research

OPG puts a high priority on supporting scientific research that can help to minimize the impact of electricity generation on the environment. The company is funding an Industrial Research Chair in Watershed Biogeochemistry at Trent University in Peterborough, Ontario. This research will assist fossil-fuel based electricity producers to better understand how their operations affect watersheds.

For the past five years, we have also supported a Natural Sciences and Engineering Research Council (NSERC) Chair in Ecotoxicology at the St. Lawrence River Institute of

Environmental Sciences. The River Institute is implementing a remedial action plan in the Cornwall-Massena area, creating artificial fish spawning habitats in the St. Lawrence River, and researching the diversity of area wetlands. It is also working with OPG's R.H. Saunders Generating Station monitoring zebra mussel population densities in the river.

Madawaska River Management Review Project

For the past four years, OPG and the Ministry of Natural Resources have been involved in a comprehensive review of water management issues on the Madawaska River, including the effects of hydroelectric operations on the river's ecosystem. The Madawaska River is a 225-kilometre tributary of the Ottawa River, a river system comprising lakes and reservoirs linked by fast-flowing sections of water. Joining the Ottawa River near Arnprior, Ontario, the Madawaska is an important natural resource for surrounding communities and a popular destination for recreational enthusiasts. In 1996 community associations and individuals registered their concerns that hydroelectric operations on the river— in particular, the impact the facilities were having on water levels and flows — were jeopardizing the ability of walleye, pike and muskellunge to spawn. OPG has since helped to install artificial spawning shoals downstream from each of its four major generating stations on the river. We also assisted in rehabilitating the walleye population by restocking the river with juvenile specimens, and have chosen to constrain our operations during the spawning and egg incubation period. The Madawaska project was the first study of its kind collaboratively undertaken by a government regulator and its regulated agency In Ontario. The final report, due in May 2000, will likely become the blueprint for studying flow management in the future. For more information about the Madawaska River Management Review, or for details on how to participate, please consult our Web site http://www.ontariopowergeneration.com/environmental/Madawaska/MadRiverTOC.asp.

In conjunction with the Madawaska River project, OPG partnered with the Calabogie Fish and Game Club to stock young walleye in Calabogie Lake.

Madawaska River Watershed

The red symbols mark the location on the Madawaska river of hydroelectric dams owned by OPG. The yellow symbol represents a Ministry of Natural Resources dam.

Protecting
the land

Land Management and Conservation

The business of producing large-scale amounts of electricity can impact the lands and spaces that belong to all of us. In 1999, OPG adopted the environmental policies of its predecessor company to support its long-term goal of being a sustainable energy producer, and to guide its investments in environmental improvements. In respect of land management, we are currently focusing on three important areas: land assessment and remediation, waste management and biodiversity.

Land Assessment and Remediation

OPG is in the second year of an intensive five-year program to identify and assess areas of historical land contamination on properties occupied by its nuclear, fossil and hydroelectric facilities. Assessing and remediating contaminated land is one of the most important items on OPG's environmental agenda. To date, we have identified a total of 41 priority sites at 30 OPG facilities. Thirty-one of the contaminated areas are included in OPG's 1999 Site Assessment Plan filed with the Ministry of the Environment under a 1997 Director's Order. The other 10 were identified by the company's own voluntary assessment program.

The primary types of historical land contaminants at OPG facilities are fuels, transformer oil, waste lubricants and radionuclides (e.g., tritium). The contaminated areas that are most likely to have offsite impacts are being remediated first, and will be completed by December 2001. We anticipate that all remaining remediations will be completed by December 2005. The total cost of OPG's land assessment and remediation program is estimated to be about $40 million.

OPG's Pickering Nuclear Station was the focus of the 1997 Director's Order mentioned above, following reports of on-site tritium contamination in groundwater near the heavy water upgrading facility. The source of the contamination has been identified, its extent delineated, and remediation is under way. While all tests indicate residual tritium in the Pickering facility's groundwater poses no risk to human health or the environment, OPG has taken the extra precaution of installing a $2-million advanced groundwater-monitoring system at this site. The system consists of a ring of 230 sentry wells that surround the site. OPG constructed this system in response to concerns raised by the Pickering

community that tritium contaminated groundwater might migrate off the site. In addition, OPG has launched an intensive investigation to identify all potential sources of tritium contamination and prevent releases.

Conventional Waste Management

Our success at finding new methods to recycle and reuse waste products that would otherwise be directed to landfill has become a source of pride in the company. In 1999, OPG recycled almost 80% of the wastes produced at its head office facility and Kipling complex, including construction and demolition waste, paper products, glass, aluminum and polystyrene. Matching this level of waste reduction at all major OPG facilities—which is our goal— will be a significant step toward sustainability.

Nuclear Waste Management

OPG is responsible and rigorous in safely managing all radioactive wastes produced at its Bruce, Pickering and Darlington nuclear facilities. These wastes fall into two categories:

Targeting Waste Reduction

Ontario Power Generation continues to develop commercial markets for two major byproducts of fossil fuel combustion: coal fly ash for the manufacture of cement and concrete, and gypsum for the manufacture of wallboard. The Ministry of the Environment classifies fly ash and gypsum as non-hazardous industrial wastes.

In 1999, we sold 44% of these byproducts, or approximately 643,200 tonnes, which would otherwise have been sent to landfill. As a result, OPG not only earned carbon dioxide emission reduction credits totaling about 200,000 tonnes, but also realized the economic benefits of revenues from sales and reduced disposal costs. In the future, coal fly ash and clinker (non-combustible residues) may also be recycled for use in engineered landfills and in the construction of barriers to prevent the spread of contaminants in groundwater. The use of fly ash as a filler in paints and plastics, and as a soil conditioner, is also being assessed.

The search for new, environmentally-safe applications and markets for the byproducts of fossil fuel combustion is time consuming and may involve obtaining changes in product specifications, funding tests and demonstration projects, and conducting economic evaluations. To open up new markets, we must also find cost-effective ways of transporting products to their destination. For example, OPG recently installed an on-site rail spur at the Atikokan Generating Station to accommodate hopper cars. This facility is now shipping fly ash by rail to customers in Southern Ontario and Manitoba, while sales were previously limited to markets that could economically be served by truck.

materials contaminated by radionuclides are classified as low- and intermediate-level radioactive wastes; used uranium fuel bundles from the nuclear reactors are high-level nuclear waste.

Low- and Intermediate-Level Radioactive Wastes In 1999, OPG produced 4,613 cubic metres of low- and intermediate-level radioactive waste. These wastes were transported to the Bruce Waste Management Facility for processing and storage in a licensed, engineered facility—where they will remain until the day they are removed for permanent disposal. OPG sets annual reduction targets for its waste products. In the past three years, we have reduced the quantity of our low- and intermediate-level wastes by 33%. Our "Likely Clean Program," introduced in 1997, provides for the careful separation of uncontaminated wastes from low-level radioactive wastes. In total there are about 40,000 cubic metres of low-level wastes and 8,000 cubic metres of intermediate-level waste at the Bruce Waste Management Facility.

Used Nuclear Fuel In 1999, our nuclear reactors generated 53,000 bundles of used nuclear fuel. Our current total inventory of 1.3 million fuel bundles is safely stored on-site at each facility where it was produced. When removed from the nuclear reactor, used fuel is immediately transferred to water-filled bays, and later to specially designed, steel-lined concrete dry containers approved by the Atomic Energy Control Board. The amount of used fuel currently in storage would fit into three hockey rinks up to the height of the boards.

In 1998 the federal government announced a new policy requiring nuclear fuel waste owners to establish a separate company to manage and coordinate the full range of activities relating to the long-term management of nuclear waste, including its disposal. OPG is working with the other waste owners in Canada to set up this new waste management organization. One of the first tasks of this organization will be to conduct a broad-based review of long-term management options and submit a preferred approach to the federal government.

With the formation of OPG on April 1, 1999, we established a segregated fund to provide financing for activities associated with long-term nuclear fuel waste management and station decommissioning. In 1999 we contributed $400 million to this fund, and we plan to contribute an average of $425 million a year over the next five years.

Biodiversity

OPG's nuclear, hydroelectric and fossil stations occupy large tracts of land bordering lakes and waterways in some of the most important ecological areas in Ontario. At each facility, we strive to protect the health and survival of the native wildlife species and ecosystems with which we share the land. Guided by OPG's Biodiversity Policy, we began in 1998 to identify and prioritize the significant species and habitats at each site that could be adversely affected by our operations. Strategies are now being developed to protect and conserve all high-priority areas.

Pickering and Bruce Nuclear Stations began conducting ecological effect assessments in 1999 to evaluate the impact of their operations on plants, animals and birds. Darlington Nuclear Station will begin in 2000. These assessments will help OPG to better focus its biodiversity initiatives to reduce and mitigate impacts. Bruce station will be the first to release its report, in the summer of 2000; Pickering's report will be released by the end of 2000; and Darlington's report will be complete in 2001. Over the longer term, all significant ecosystems will be protected and conserved through the implementation of wildlife habitat management initiatives.

Here are just some of the initiatives undertaken by OPG in 1999 to support regional biodiversity:

Sileno C. Corsini / Pigeon Marsh This marsh, a 76-hectare wetland complex near Lake St. Clair, is one of the most important wetlands in North America. It is a staging area for waterfowl from the Mississippi and Atlantic flyways, and a natural habitat for rare and endangered flora and fauna. Through its Corporate Citizenship Program, OPG contributed $100,000 to Ducks Unlimited Canada in 1999 to support the preservation and restoration of this ecological heritage site.

Sileno C. Corsini/Pigeon Marsh Project
Photo courtesy of Ducks Unlimited

Lennox Fossil Fuel Station Lennox Generating Station has protected a 57-hectare wetland on its site that is one of the largest known Eastern Ontario breeding areas for the black tern, a provincially rare bird. With financial assistance from OPG's Corporate Citizenship Program in 1999, Lennox station staff teamed up with the Lennox & Addington Community Stewardship

Council and Napanee District Secondary School to plant a buffer corridor of trees and shrubs along the stream that joins the wetlands to Lake Ontario. Our Corporate Citizenship Program also supported the Cataraqui Regional Conservation Authority's efforts to advance environmental educational programs for youths and extend the Lake Ontario Waterfront Trail through Eastern Ontario.

Wetland rehabilitation on the site of Pickering Nuclear Station proceeds with the help of employees and volunteers.

Pickering Nuclear Station More than 25% of Pickering station's 195 hectares on the shore of Lake Ontario is included in the site's Biodiversity and Natural Areas Management Plan. In 1999, the wildlife management program developed at Pickering station was certified by the Wildlife Habitat Council, with special commendations for enhancing the on-site Hydro Marsh and adjacent Frenchman's Bay and Duffin's Creek, which support significant wildlife populations. OPG earned this award with the generous, energetic support of local conservation associations and schools who helped OPG employees to construct marsh buffers, tend aquatic plants, install black tern and wood duck nesting platforms, and much more.

With a corporate contribution of $200,000, OPG employees also joined with the community in linking the Millennium Trail to the regional Lake Ontario Waterfront Trail.

Nanticoke Fossil Fuel Station In 1999 Nanticoke Generating Station was recognized by the Wildlife Habitat Council for the development of a successful site wildlife management program. In granting its certification the Council made note of Nanticoke's efforts in protecting existing habitat, extensive tree planting, installation of nest boxes, and development of an engineered wetland for treatment of domestic sewage. Nanticoke's biodiversity program received assistance from a number of community groups, including the Haldimand District Scouts, who have planted thousands of trees on site. In 1999, our Corporate Citizenship Program also assisted Nanticoke station in supporting the Long Point World Biosphere Foundation and the Long Point Foundation for Conservation.

Niagara Hydroelectric Plant Group The Niagara Greening Strategy has been a priority project here for the past several years. OPG has provided funding for thousands of trees and shrubs to form a natural screen around the Niagara River reservoir. In 2000, OPG's facilities on the Niagara River will focus on developing site-specific biodiversity strategies.

Lambton Fossil Fuel Station About 40% of the Lambton site is comprised of wetlands, wood lots, open fields and shoreline, an important component of the broader St. Clair River wildlife corridor. Lambton was recertified in 1999 by the international Wildlife Habitat Council for its wildlife habitat management plan. In addition to managing wildlife habitat on site, the station is an active participant in the St. Clair River Basin Project, Waterways for Wildlife, which seeks to engage individuals, corporations and conservation associations in enhancing wildlife habitats in the St. Clair River Basin.

Thunder Bay Fossil Fuel Station Thunder Bay station staff support the efforts of the Lakehead Region Conservation Association. In 1999, a $10,000 grant to this association helped to improve facilities at, and public access to, the region's Mission Marsh Conservation Area, as well as optical viewers for the public and apple trees for the wildlife.

Future Initiatives OPG has announced that it will plant and/or preserve at least one million native trees and shrubs over the next three years in Southern Ontario, as part of its strategy to manage greenhouse gas. We estimate that over their lifetime, these million trees will offset the equivalent of 560,000 tonnes of carbon dioxide. This program is unique because it is also linked to our efforts to conserve biodiversity. In the first phase of the program, beginning in 2000, OPG will partner with the Toronto and Regional Conservation Authority to plant approximately 200,000 native trees and shrubs on three high-priority natural heritage sites associated with the Oak Ridges Moraine.

Greening our energy portfolio

Ontario Power Generation currently owns and operates a modest portfolio of low-impact, renewable green energy, with a production capacity of about 125 megawatts—less than 1% of the company's total in-service capacity. This capacity is in addition to the 25% of OPG's renewable energy from hydroelectric sources. Green energy is energy produced from renewable resources such as wind, solar and biomass energy (such as landfill gas) or small run-of-river hydroelectricity. Our green energy is currently drawn primarily from small-scale, run-of-river hydroelectric stations, with a small amount of wind and solar power.

Green energy is cleaner because it substantially reduces air pollution, greenhouse gases and other impacts that would result from generating comparable amounts of electricity using conventional energy sources.

In a deregulated electricity market, green energy will be increasingly important to OPG's future success, as consumers will likely come to expect more green energy options when given the ability to choose. For example, the city of Toronto, the federal government and a few companies have announced green energy targets. OPG's experience and ongoing research and development activities in the alternative energy field will serve the company well in becoming Ontario's supplier of choice for green energy.

Our Green Energy Portfolio Today

Small Hydroelectric OPG operates and maintains 29 small run-of-river hydroelectric stations in Ontario. These stations produce about 116 megawatts of low-impact green energy by harnessing the renewable power of fast-flowing rivers. They have been certified by Environment Canada's Environmental Choice (EcoLogo ™) Program based on their compliance with a series of environmental criteria.

In 1999 OPG installed a new run-of-river mini-hydroelectric plant to service the town of Blind River, Ontario. Its 150 kilowatts of renewable energy feed municipal buildings in Blind River, without disrupting recreational activities or the environment. The facility was built into an existing control dam belonging to the Ministry of Natural Resources. It is an excellent prototype for sustainable energy applications that could be implemented at hundreds of sites across Ontario.

Through its subsidiary, Ontario Power Technologies, OPG also helped to design and install a 60-kilowatt micro-hydroelectric station on the reserve of the Serpent River First Nation (near Spanish, Ontario). This run-of-river unit borrows water from the river, just above Kennebec Falls, then returns the water immediately downstream. The environmental impact of this operation is negligible because a siphon water intake draws only a small fraction of the river's flow to generate energy. OPG has developed and tested cost-effective siphon intakes that could be employed at small hydroelectric facilities. The siphon intake system eliminates the in-water construction and environmental disruption associated with conventional hydroelectric structures. As a result, many more sites in Ontario may become economically viable for green energy production.

Wind Power OPG currently operates three wind turbines in Ontario, with a total capacity of about 650 kilowatts. Our largest unit, a 600-kilowatt Tacke wind turbine located at the Bruce Information Centre near Tiverton, Ontario, is ranked among the top 10 wind turbines in the world in its size class based on its performance over the past five years. This wind turbine generates about 1,100 megawatt-hours of electricity annually, which is equivalent to the yearly consumption of approximately 100 average homes and has the potential to offset roughly 1,000 tonnes of CO_2 and acid gas emissions each year.

While the cost of wind energy has dropped by over 40% in the last decade, it is not yet a cost-competitive alternative to more conventional forms of electricity like nuclear, fossil and large-scale hydro. To become economic, future wind developments will need to take advantage of the economies of scale provided by constructing multiple turbine wind farms at prime wind sites in Ontario and elsewhere. As the market demand for green power grows, OPG is interested in developing the strategic alliances required to make wind-generated power a more significant part of its green energy pool.

Kortright Centre for Conservation. The Centre for Sustainable Living, located north of Toronto in Vaughan, Ontario, houses a Living Machine — a simulated natural wetland which treats the centre's sewage

Solar Power A demonstration solar, photovoltaic power system, designed and installed by Ontario Power Technologies, is in operation at the Kortright Centre for Conservation, north of Toronto. This four-kilowatt system is grid-connected and feeds its output into the Vaughan Hydro electrical distribution system. OPG plans to increase the amount of photovoltaic-based energy in its green energy pool by pursuing opportunities to install photovoltaic panels on its own facilities and those of customers.

New Green Energy Initiatives

OPG expects that green energy demand will rise because of increasing consumer awareness and environmental commitments. To meet this demand, OPG plans to invest $25 million over the next five years to increase its green energy capacity by about 100 megawatts – bringing our total green energy portfolio to about 225 MW. We will strive to meet this target by constructing new green energy facilities, arranging power purchase agreements with other green energy producers, and developing focused green energy applications that meet the needs of specific customers. Our plan is to develop a diverse, cost-competitive and reliable green energy pool, primarily by drawing on biomass and small low-impact hydroelectric in the near term, while including a limited but growing amount of wind and solar-based energy sources over the longer term.

Small Hydroelectric We have selected 22 potential run-of-river hydroelectric locations close to existing OPG facilities that have the potential to generate 50 MW of electricity. After pre-engineering studies are completed, some of these sites could enter our green energy pool as early as 2001. We are also looking at upgrading a number of our existing small hydro sites to increase their output of green energy.

Biomass In 1999, OPG purchased CO_2 emission reduction credits from a biomass (landfill-gas-fuelled) energy project in Waterloo, Ontario, to assist in improving the economic viability of the project. Toromont Energy Ltd., the owner and operator of the project, collects methane gas from a landfill, then uses this greenhouse gas to generate electricity rather than venting it to the atmosphere. The project went into service in August 1999. OPG has contracted to purchase the plant's total 3.5 megawatts of electrical output as part of its portfolio of green energy. OPG will also be investigating opportunities to use other biofuels, such as wood waste, to produce green energy.

OPG's commitment to reducing greenhouse gas includes an agreement with Toromont Energy to purchase power and emission reduction credits produced from landfill gas.

Solid Oxide Fuel Cell Although this technology is not "green" by definition, it stands to significantly reduce the environmental impacts of electricity production in the future.

OPG will spend up to $3.7 million over the next two years to help fund the development of the world's largest solid oxide fuel cell (SOFC) combined heat and power (CHP) plant. Ontario Power Technologies will construct, commission and operate a precommercial 250-kilowatt prototype of this technology by 2001. Other partners involved in this project include Siemens Westinghouse, the U.S. Department of Energy and the federal government through the Climate Change Early Action Measures program and the Industrial Research Assistance Program.

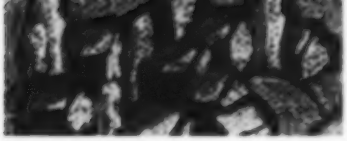
Because the fuel cell converts natural gas to electricity by an electrochemical process rather than by combustion, it produces virtually no NOx or SO_2 emissions, and CO_2 emissions are reduced by more than 50% compared with coal-fired thermal generation. This initiative is one example of OPG's long-term strategic plan to move toward more sustainable energy sources.

The 250-kilowatt prototype system is expected to have an electrical efficiency of about 47% and an overall fuel-conversion efficiency, with heat recovery, of up to 80%. In comparison, central coal-fired power generation has an electrical efficiency of about 35% and no heat recovery. In other words, the solid oxide fuel cell with heat recovery is expected to be more than twice as efficient as a coal-fired power plant.

In the emerging competitive energy marketplace, the fuel cell represents one of a number of small-scale power generation technologies that may handle increases in system demand through the use of distributed generation*, where supplies of natural gas are available. Advantages of distributed generation include lower-capital outlay, shorter installation time, lower transmission and distribution costs, reduced energy loss, and use in special applications such as co-generation. The growth of distributed-generation applications can also help to commercialize renewable and alternative energy technologies that are highly efficient and produce few emissions. The development of high-efficiency, low-emission, distributed-power generation technologies such as the solid oxide fuel cell is expected to have a significant impact on the North American electricity industry, complementing the present network of lines and central stations, and making optimal use of existing energy distribution infrastructures. In the longer term, OPG will be looking at opportunities to increase the sustainability of fuel cells by utilizing more environmentally-friendly fuels like biofuels (such as landfill gas) or industrial waste streams rich in hydrogen.

* Distributed generation = electricity generation at, or in proximity, to its point of use.

Contributing to society



As the largest industry in many Ontario communities, and the primary employer, Ontario Power Generation is committed to being an active, participatory corporate citizen. We have a strong sense of our responsibility to improve the quality of life in the communities that are home to our generating facilities. Two important ways that OPG contributes are through its corporate-wide Charity Trust Campaign and its Corporate Citizenship Program. Some of the 1999 recipients are mentioned below. Unfortunately, space does not allow us to describe the thousands of individual acts of volunteerism by OPG employees, who donate generous amounts of time and energy to their communities.

Community Contributions

Charity Trust Campaign OPG employees are able to allocate their personal contributions to their favourite charities through the company's Charity Trust Campaign. The 1999 Charity Trust Campaign raised about $2 million on behalf of United Way, Canadian Cancer Society, Hospital for Sick Children, and many more.

Corporate Citizenship Program At the corporate level, OPG strives to build on the strong foundation of social responsibility set by its employees. Our Corporate Citizenship Program was established to provide financial and in-kind support to registered charities and not-for-profit environmental, educational and community initiatives that reflect OPG's vision of sustainability. Since OPG was formed, in April 1999, we have contributed a total of $1.67 million to about 180 recipient organizations.

Creativity and enthusiasm raise employee spirit and cash for the Charity Trust, which helps supports Handi-Care International, providing home and shelter, physical rehabilitation, education and employment assistance to disabled rural children.

The following are a few examples of how OPG performs its role as a socially responsible corporate citizen. They include Charity Trust Campaign and Corporate Citizenship Program initiatives as well as others that enhance quality of life, public education, safety and the environment.

Quality of Life

We celebrated with the Rocky Bay First Nation when a First Settlement Agreement was signed involving compensation for past losses of their historical grounds.

Magnus in the Park: An OPG contribution will assist in transforming Central School, a Thunder Bay heritage building, into an arts centre to house the new Magnus Theatre.

Atikokan Public Library: To commemorate the community of Atikokan's 100th anniversary, OPG kick-started a fundraising campaign for barrier-free access at the Atikokan Public Library with a contribution of $20,000.

Corporate Citizenship Program: Contributed $100,000 towards the construction of the Saugeen Shores Community Centre, supplementing a similar amount raised by Bruce Generating Station employees through Charity Trust.

Durham College: OPG made its second of five annual corporate contributions to Durham College's Creating Futures Campaign in support of the school's expansion to include a university centre. In 1999, OPG and its employees contributed $100,000 to this initiative through the Corporate Citizenship Program and Charity Trust.

OPG employees in Pickering raised almost $7,000 for the Pickering Annual Food & Toy Drive.

Niagara Falls at Night: Niagara Plant Group has teamed up with the City of Niagara Falls, Niagara Parks Commission and U.S. counterparts to light up the Falls at night.

Public Education

Youth Science Foundation and National Engineering Week: OPG's contributions to these initiatives help to encourage young Canadians to pursue careers in engineering, science and technology.

The Learning Partnership: Through its Corporate Citizenship Program, OPG supported the "Change Your Future" Intervention Program for at-risk youths. Members of OPG's Association of Black Employees volunteer as mentors for this program. The Learning Partnership also organizes the "Take Our Kids to Work" program.

In 1999, OPG engineers participated in a live multimedia stage show that was simulcast on the Web as part of a long-term educational campaign entitled "Engineers are Everyday Heroes." OPG was a major sponsor of this event, with the Professional Engineers of Ontario and TVOntario

Bruce Nature Day Camp: Our Bruce facility welcomes the public to its Nuclear Information Centre for seminars on energy and the environment. Each summer, children from neighbouring communities learn about ecology and the environment at the Bruce Nature Day Camp.

Thunder Bay Chamber of Commerce Career Festival: Our Thunder Bay station is a proud sponsor of this program to help local students prepare for the job market.

President's Sustainable Energy Development Champion Awards

These annual awards recognize OPG employees who make an outstanding contribution to the company's competitiveness and sustainable energy future. In 1999, OPG presented four awards:

AWARD	AWARD WINNERS
For improving effluent quality using engineered wetlands at Nanticoke station	Andy Gregoriou and Gerry McKenna
For developing an artificial intelligence control system to reduce nitrogen oxide emissions at Lambton station	Ken Bachalo, K.C. Chan, Joe Luk, Jim Henrikson, Blair Seckington
For their integrated planning approach on the Madawaska River project	Jim Whyte, Bob Vinski, Greg Pope, Linda Halliday
For his outstanding contribution in promoting Sustainable Energy Development	Murray Paterson

Children's Groundwater Festival: OPG employees teamed up with community, education and industry partners—and The Honourable Hilary M. Weston—to instruct 4,000 Grade 4 students from Durham Region in the importance of protecting water resources.

The Environment

Pollution Probe: A financial contribution from OPG in 1999 helped Pollution Probe to promote Energy Efficiency, Energy from Renewables and Emission Reductions through distribution of its 3Es Report.

The Owl Foundation: Highly regarded by birding enthusiasts for its work with injured birds, the foundation is Canada's oldest wildlife rehabilitation centre. In 1999, OPG contributed to the foundation's raptor and owl rehabilitation programs.

Public Safety

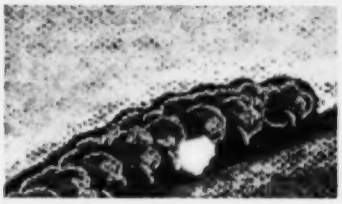
Be Waterwise on our Waterways: Every year our hydroelectric production unit sponsors a water safety campaign, including posters, brochures and advertising, to raise awareness of safety hazards around hydroelectric power stations and dams.

Nuclear Safety: OPG responds to public concerns about nuclear safety through ongoing consultation with community and environmental advisory groups at both the community and provincial levels. Each of OPG's nuclear facilities also hosts open houses where the public can obtain answers to their questions about nuclear safety, waste management and future directions.

Gamma Ray Survey: In the fall of 1999, OPG performed an aerial gamma ray survey of both the Pickering and Darlington stations, at the request of the Environmental Advisory Group. A similar survey was conducted at Bruce Nuclear Station in 1998. All three surveys confirmed that gamma radiation levels in the surrounding communities were typical of natural levels across Ontario.

Just Lending a Hand: Darlington Emergency Response Teams "demonstrated a solid, unified command structure" when they helped out at the scene of a train derailment in November 1999, near the Darlington facility.

Economic sustainability



Balancing financial performance with environmental leadership and social responsibility is one of Ontario Power Generation's key strategies for becoming the electricity supplier of choice. We will build our reputation by providing electricity and energy services at a competitive price while protecting the environment and being responsive to our stakeholders and customers. We believe this strategy makes good business sense.

On April 1, 1999, OPG commenced operations as one of the largest electricity-generating companies in North America, with a production capacity of about 31,000 megawatts. As one of five successors to Ontario Hydro, OPG supplies electricity through the wholesale market to approximately four million homes and businesses in Ontario—that is, roughly 85% of all electricity consumed in the province.

Competing in the 21st Century

Over the coming months, Ontario's electricity market will be open to competition. In compliance with the requirements of deregulation, over the course of 10 years OPG will reduce its control over Ontario's electricity supply to a level that does not exceed 35%. To help meet this target, OPG plans to "decontrol" via sale or lease approximately 4,000 megawatts of hydroelectric and fossil-generating capacity by November 2000, including Lennox and Lakeview generating stations. We have also announced plans to "decontrol" the Bruce nuclear facility, and negotiations with interested parties are in progress.

Strength and Sustainability

OPG is well prepared to compete in an open market. We have a competitive mix of generation assets with low unit production costs, high operational flexibility and reliability, and are continuing to focus on our core business. With a new seasoned management team to lead our organization forward, we are building a performance-based culture with a strong customer orientation. Our 1999 financial results were considerably ahead of plan. Significantly, we are also one of the cleanest electricity generators in our regional airshed and marketplace. OPG must build on these economic and operational strengths to support its quest for sustainable energy development.

Corporate Appreciation Award

In 1999, the Economic Developers Council of Ontario selected Ontario Power Generation as the first recipient of its Corporate Appreciation Award. The award acknowledges OPG's contribution to economic development in the province of Ontario in its many forms, including as a founding member of Team Ontario and Sites Ontario.

1999 Results of Operations

OPG achieved strong financial results in its first nine months of operation ending December 31, 1999, with net income after tax of $326 million; total revenues exceeding $4.3 billion on electricity sales of 102 terawatt-hours; and cash flow from operations of $549 million. Our return on equity on an annual basis was 8.5% compared to the planned level of 5.3%, a significant improvement and a major step toward our target of 14%.

Contributing to Ontario

The deregulation of the electricity market in Ontario will not diminish OPG's commitment to help sustain the strength and vitality of both the province as a whole and the individual communities in which we operate. OPG headquarters will remain in Ontario, producing economic benefits for the province that include quality jobs, research and development, and corporate investments. We employ 15,000 skilled workers in communities across Ontario. We also help to sustain the economic strength of suppliers through purchases of more than $1 billion a year in goods and services. Eighty percent of OPG's suppliers are based in Ontario. Between April and December 1999, we paid $289 million to the Ontario government, our sole shareholder, in lieu of taxes.

Enhancing environmental performance is important to OPG in attracting business partners and investment capital. Moreover, we believe we can achieve a significant competitive advantage with customers in all markets by continually reducing the impact we have on the environment and by leveraging our $1 billion a year in purchasing power to encourage suppliers and contractors to invest in the environment.

Sustainable Development Scorecard

"In a Sustainable Development Index benchmarking study of the Canadian utility sector conducted in 1999 by Sustainable Investment Group, OPG's Sustainable Development program scored 77.1%, compared to an average Canadian electrical utility score of 63.9% (the highest score was 79.1%). OPG is, by definition, an exemplary practitioner of sustainable development. Accordingly, if OPG were a publicly traded company, it would be eligible for inclusion in the YMG Sustainable Development Fund, Canada's first mutual fund to quantitatively assess corporate sustainable development best practices."

Dr. Blair W. Feltmate
Partner, Sustainable Investment Group Ltd.
April 2000
Fund Advisor, YMG Sustainable Development

Independent external verification

To, Ron Osborne,
President and Chief Executive Officer - Ontario Power Generation

We have carried out a review of 1999 Progress Report Towards Sustainable Development (PRTSD) report, the preparation of which is the sole responsibility of Ontario Power Generation. Our objective was to form an independent view on the information reported, and the processes by which the data was collected and collated. This review does not constitute an audit and consequently we do not express an audit opinion on the 1999 PRTSD.

Basis of our review

In accordance with your instructions, our review comprised the following steps:

1. A review of the processes by which environmental data was collected and collated through discussion with management, staff and a review of the report data systems at the corporate office.
2. A review of documents including reports to the Environment, Health and Safety Committee of the Board for 1999, to ensure that all significant environmental events reported in 1999 have been considered for inclusion in the PRTSD.
3. A review of documents, both internal and selected regulatory filings, to ensure that statements made in the 1999 PRTSD report are consistent with underlying information.
4. A review of environmental related reports completed for 1999 by the Corporate Auditor.
5. A review of the transcription and aggregation of operating site data reported from Ontario Power Generation operations on a sample basis to determine the completeness, consistency, and comparability of the data generated by corporate office.

Conclusions

On the basis of the review described above we have formed the following views of the information reported in pages 58 to 59 of the1999 Progress Report Towards Sustainable Development :

- The reported 1999 data has been properly collated at the corporate office from the data provided by the business units.
- Comparative information has been properly transcribed, aggregated and consistently presented from year to year.
- The information reported in the 1999 Progress Report Towards Sustainable Development is consistent with the information reported in Appendix B on page 49.
- The business units employed a systematic approach in environmental data collection.
- We have recommended to management areas for improvement in data collection and collation procedures.
- We are not aware of any significant environmental incidents that have not been included in the 1999 Progress Report Towards Sustainable Development.

Ernst & Young LLP

Toronto, Ontario
May 17, 2000.

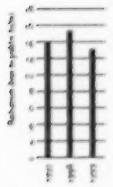
Appendices

Appendix A- facility information

Nuclear

Net generation capacity
Pickering A: 2060 MW
Pickering B: 2064 MW
Located on Lake Ontario in the city of Pickering, each generating station has 4 units. Pickering A is temporarily out of service during the Nuclear Improvement Program. Number of used fuel bundles stored on site: 458,203
Tel: (905) 839-1151

1997	1998	1999
20,442	12,685	13,649



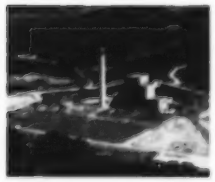
Net generation capacity
Bruce A: 3076 MW
Bruce B: 3140 MW
Located on the eastern shore of Lake Huron, between Kincardine and Port Elgin, each generating station has 4 units. Bruce A is temporarily out of service during the Nuclear Improvement Program. Number of used fuel bundles stored on site: 650,099
Tel: (519) 361-2673

1997	1998	1999
31,405	20,863	22,360

Net generation capacity
3524 MW.
Located on Lake Ontario in the town of Newcastle, 70 km east of Toronto. This generating station has 4 units. Number of used fuel bundles stored on site: 148,857
Tel: (905) 623-6670

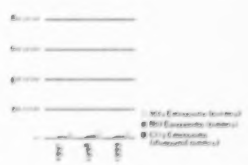
1997	1998	1999
18,426	26,353	25,411

Fossil



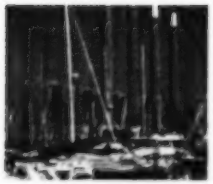
Net generation capacity:
215 MW
Located west of Thunder Bay, the station has one coal-fired unit equipped with low-NOx burners.
Contact:
Tel: (807) 346-3900 ext. 3904

	1997	1998	1999
	822	1,434	1,115
SO_2	3,820	6,370	5,560
NO	1,180	2,230	1,310
CO_2	840,000	1,450,000	1,100,000



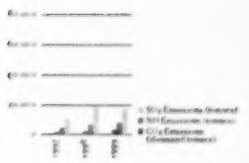
Fossil

Lakeview GS



Net generation capacity: 1138 MW
Located in Mississauga. The station has 8 coal-fired units, 4 of which are presently mothballed.
Contact: Tel: (905) 274-3461 ext. 3301

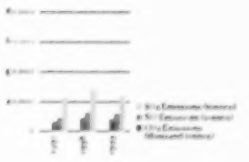
	1997	1998	1999
	2.018	2.921	3.271
SO2	13.400	18.800	18.100
NO	5.480	7.820	8.740
CO2	1.890.000	2.600.000	3.000.000



Lambton GS

Net generation capacity: 1974 MW
Located on the St. Clair River south of Sarnia, the station has 4 coal-fired units, 2 of which are equipped with SO_2 scrubbers.
Contact: Tel: (519) 431-1188

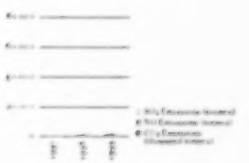
	1997	1998	1999
	7.366	9.526	9.001
SO2	23.200	29.200	27.300
NO	11.700	14.400	12.800
CO2	6.500.000	8.300.000	7.800.000



Lennox GS

Net generation capacity: 2140 MW
Located on Lake Ontario near Kingston. The station has 4 oil and/or natural gas-fired units.
Contact: Tel: (613) 352-3525 ext. 5303

	1997	1998	1999
	309	1.311	2.393
SO2	456	2.160	1.750
NO	326	1.440	2.130
CO2	260.000	1.000.000	1.600.000



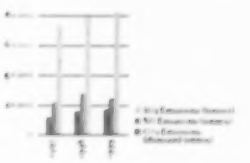
Nanticoke GS

Engineered wetland

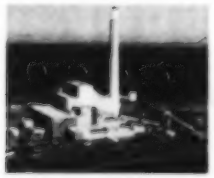
Net generation capacity: 3920 MW
Located on Lake Erie, the station has 8 coal-fired units.

Contact: Tel: (519) 587-2201 ext. 3919

	1997	1998	1999
	12.765	17.378	19.037
SO2	76.500	78.400	81.800
NO	22.200	27.500	24.300
CO2	11.700.000	15.500.000	17.000.000

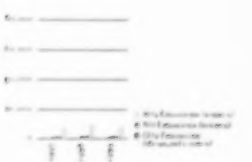


Thunder Bay GS



Net generation capacity: 310 MW
Located in Thunder Bay, this station has 2 coal-fired units.
Contact: Tel: (807) 346-3900 ext. 3904

	1997	1998	1999
	1.552	2.016	1.642
SO2	6.230	8.040	7.720
NO	2.210	2.370	2.090
CO2	1.500.000	1.950.000	1.600.000



Hydroelectric Plant Divisions

Niagara Falls

Includes 6 stations, HQ in Niagara area
Gross generation capacity: 2207 MW

Contact: Tel: (905) 357-6903

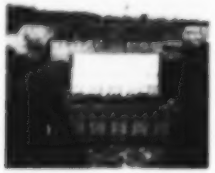
1997	1998	1999
13,497	13,174	12,355

Beaver Chute G.S.

Includes 10 stations, HQ in Renfrew
Gross generation capacity: 2536 MW

Contact: Tel: (613) 932-3072 ext. 3304

1997	1998	1999
13,432	11,656	11,550



Abitibi Canyon G.S.

Includes 13 stations, HQ in Timmins
Gross generation capacity: 1270 MW

Contact: Tel: (705) 267-7033 ext. 2064

1997	1998	1999
4,255	3,865	4,958

Pine Portage G.S.

Includes 14 stations, HQ in Thunder Bay
Gross generation capacity: 1126 MW

Contact: Tel: (807) 346-3900 ext. 3904

1997	1998	1999
4,600	2,725	4,228

Hanbury Falls G.S.

Includes 26 stations, HQ in North Bay
Gross generation capacity: 116 MW

Contact: Tel: (705) 687-6214

1997	1998	1999
581	480	540

Appendix B- data tables

Indicator	1999	1998	1997
ENERGY GENERATION BY SOURCES (gross GWh)			
Fossil	38,000	36,100	25,900
Hydroelectric (renewable)	33,700	33,000	36,500
Nuclear	65,900	64,600	75,600
Total Internal Energy Generated	137,600	133,600	138,000
ENERGY GENERATION BY SOURCE (net GWh)			
Fossil	36,500	34,600	24,800
Hydroelectric (Renewable)	33,600	31,900	36,400
Nuclear	61,400	59,900	70,300
Total Internal Energy Output	131,500	126,400	131,500
ENERGY CONVERSION EFFICIENCY OF FOSSIL GENERATING STATIONS			
Total Energy Input (GWh equiv.)	102,500	96,900	68,600
Net Energy Output (GWH)	36,500	34,600	24,800
Fuel Conversion Efficiency (%)	35.6	35.7	36.2
OPG INTERNAL ENERGY EFFICIENCY			
Gross Generation (GWh)	137,600	133,600	138,000
Net Generation (GWh)	131,500	126,400	131,500
Generation Energy Efficiency (%)	95.5	94.6	95.3
Internal Energy Saving - Cumulative since 1994 (GWh)	1,897	1,759	1,588
ATMOSPHERIC EMISSIONS - FOSSIL			
Total Gross Annual CO2 Emissions (tonnes)	32,100,000	30,800,000	22,700,000
Total Gross Annual SO2 Emissions (tonnes)	142,100	143,000	123,600
Total Gross Annual NOx Emissions (tonnes)	51,400	55,800	43,100
EMISSION RATES - FOSSIL			
CO2 Emissions (tonnes/GWh)	880.4	890.5	914.1
SO2 Emissions (tonnes/GWh)	3.90	4.13	4.98
NOx Emissions (tonnes/GWh)	1.41	1.61	1.73
ATMOSPHERIC EMISSIONS - NUCLEAR			
Total Gross Annual CO2 Emissions (tonnes)	147,200	108,500	115,300
Total Gross Annual SO2 Emissions (tonnes)	299	548	1,815
Total Gross Annual NOx Emissions (tonnes)	204	171	344

Indicator	1999	1998	1997
ATMOSPHERIC EMISSIONS - OPG			
Total Gross Annual CO2 Emissions (tonnes)	32,247,000	30,909,000	22,815,000
Total Gross Annual SO2 Emissions (tonnes)	142,400	143,500	125,400
Total Gross Annual NOx Emissions (tonnes)	51,600	56,000	43,400
EMISSION RATES – TOTAL OPG			
CO2 Emissions (tonnes/GWh)	245.2	244.6	173.5
SO2 Emissions (tonnes/GWh)	1.08	1.14	0.96
NOx Emissions (tonnes/GWh)	0.39	0.45	0.33
TOTAL NUMBER OF REPORTABLE SPILLS			
Category A Spills	0	0	2
Category B Spills	5	10	5
Category C Spills	71	86	60
PCB MANAGEMENT			
High -level PCB material in storage (tonnes)	39.9	26.6	756.6
High -level PCB materials sent for destruction (tonnes)	202	764.4	125.6
Estimated inventory of High-Level PCB material in service	1789	1980	2006.7
Low-Level PCB materials in storage (tonnes)	19.4	14.6	54.3
Low-Level PCB material sent for destruction (tonnes)	8.2	80.5	66.4
Estimated inventory of Low-Level PCB material in service	3.1	5.5	4.4
RADIOACTIVE WASTE MANAGEMENT			
Used fuel - annual production (tonnes of uranium)	1071	1362	1190
Used fuel in Storage (tonnes of uranium)	24,520	23,449	22,087
Low & Intermediate Radioactive Waste produce (m3)	4613	4978	6871
UTILIZATION OF SOLID COMBUSTION BY PRODUCTS			
Total Ash and Gypsum Produced (tonnes)	1,466,300	1,413,000	1,070,000
Total Ash & Gypsum Recycled (tonnes)	643,200	632,000	598,000
HAZARDOUS WASTE GENERATION - ALL SOURCES			
Solid (tonnes)	126	2,424	3801
		Solids & Liquids (Combined)	
Liquid (m3)	2,810		

Glossary

k	kilo	x 10^3	kg = 1000 grams	kWh (kilowatt-hour) = unit of electricity production
M	Mega	x 10^6	Mg = 1 million grams = 1 tonne	MWh (megawatt-hour) = 1000 kWh is approximately equivalent to the electricity used by one household in a month.
G	Giga	x 10^9	Gg = 1 million tonnes	GWh (gigawatt-hour) = one million kilowatt-hours is approximately equivalent to the electricity used by 80 homes in one year.
T	Tera	x 10^{12}		TWh (terawatt-hour) = 1000 GWh is approximately equivalent to the electricity used by 80,000 homes in one year. In 1999, OPG generated 131.5 TWh of electricity.

Gross generation (generally expressed in MWh)	total electricity produced by a generating station
Net generation (generally expressed in MWh)	gross generation - internal energy use
Generation capacity (generally expressed in MW)	indicator of generating station size based on its capacity to produce electricity on a continuous basis. OPG's total generation capacity is 30,900 megawatts

We welcome your comments

We welcome your comments or any questions you may have about this report.

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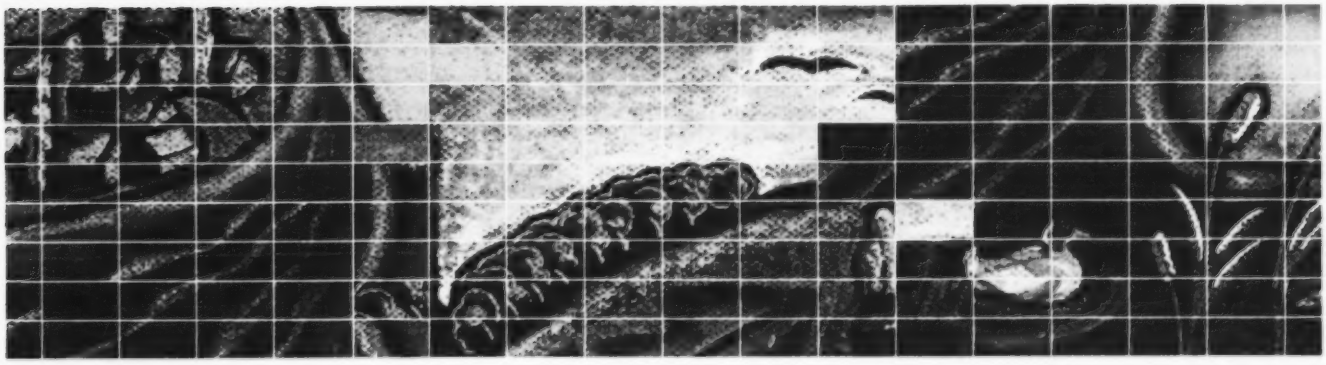

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